

## Economic Analysis

Three aspects of economic and social impacts are analyzed: 1.) financial feasibility of the proposed timber sale, 2) Cost efficiency of the timber sale, and 3) impacts to local employment.

This analysis meets Forest Service direction to evaluate economic feasibility of timber sales and related restoration costs, Forest Service Handbooks 1909.17, 2409.18.

## Analysis Method

This analysis uses a present net cost and present net revenue program, TEA. ECON (USDA Forest Service, 2009). The program uses local log values, costs, and market quality adjustment to evaluate timber sale and project economics. A 4% discount rate is used to compare costs and benefits in current dollars.

## Timber Sale Feasibility

### Revenues

Revenue is based on harvest volume and value. Volumes are estimated from cruise data to-date, stand exams, and the Liberty Fuels project and the most recent timber sale in the Swauk Pine watershed. Updated timber values came from Product Quality Adjustments (PQA), for delivered log prices. Approximately 10883 CCF or more timber volume could be cut, but the exact total is unknown since final cruise volumes are not available, the sale is currently being marked.. April 2016 TEA timber values were used to predict revenues.



## PROJECT OR SALE-AS-A-WHOLE ECONOMIC ANALYSIS SUMMARY

Version 6.1 (5/30/2013) - R6, Excel 2007 & 2010

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Volume type: CCF

Forest/district:

Sale/alternative: Swauk Pine Alt. 2

Date: 7/24/2018

Harvest vol current: 10,645

Harvest vol future:

Total harvest volume: 10,645

Project Type	Entry	Discounted Costs	Discounted Revenues	Net Present Value (NPV)	Benefit-Cost Ratio (B/C)	Predicted High Bid- \$/ccf	Notes
Timber sale	<b>Current</b>					4.05	sale appears viable
Timber sale & related projects		120,642	39,129	(81,513)	0.32		sale is below cost
Non-timber related projects		688,586		(688,586)			project is below cost
Timber & non-timber projects		809,228	39,129	(770,099)	0.05		project is below cost
Timber sale	<b>Future (18)</b>						
Timber sale & related projects							
Non-timber related projects							
Timber & non-timber projects							
Timber sales & related projects	<b>All entries</b>	120,642	39,129	(81,513)	0.32		combined project below cost
Non-timber related projects		688,586		(688,586)			combined project below cost
Timber & non-timber projects		809,228	39,129	(770,099)	0.05		combined project below cost

Appraisal Zone	National Forest	TEA.COST File	Salvage Sale?
2	Wenatchee	Version 1741 (TEA 12-17) - R6 TEA Data	No

## Costs Efficiency

Timber sale costs include, stump to truck, haul costs, road maintenance, brush disposal/erosion control, and temporary road construction costs. These costs were collected from the Liberty Fuels project and weighted with Swauk Pine logging system acres. The logging costs used are displayed below.

## SALE INPUT - TIMING, RATES, & FOREST SERVICE COSTS



### Current Entry

Version 6.1 (5/30/2013) - R6, Excel 2007 & 2010

Sale/alternative: Swauk Pine Alt. 2

Timing & Rate Items	Current Entry		
	Value	Input notes	
begin logging	1.0	years from now, now = 0	
sale life, yrs	3.0	estimated sale contract length, yrs	
interest rate %	4.0%	<b>real</b> interest rate in percent	
<b>essential</b> kv, year	0.0	years from now, now = 0	
Forest Service Costs	Value-\$/ccf	Yrs from now	Discounted - \$/ccf
planning, nepa	5.00	1.0	4.81
sale prep	2.00	2.0	1.85
sale admin	2.00	3.0	1.68
trans planning	3.00	0.0	3.00
goto future		print	

Volume type: CCF

FS costs last updated: 12/20/2017

Other project related costs used include:

The skyline logging is deficit (1171ac.) and the ground based logging (166 ac.) has a positive net value.

### Restoration Costs

This is a list of projects that are non-timber costs. Some of these activities are more critically linked to the proposed action, for instance road decommissioning and road closures are needed to occur simultaneous with commercial thinning and under-burning, so that cumulative watershed effects are buffered. Appendix I is detailed restoration activity schedule, but the location and timing of these activities is unknown at this time, much of this schedule depends on who purchases the timber sale and where they choose to start work. These restoration costs were collected through the IDT subject matter expert using most recent costs from current projects at the Cle Elum Ranger District.



## NON-TIMBER BENEFITS and COSTS - CURRENT ENTRY

Version 6.1 (5/30/2013) - R6, Excel 2007 & 2010

[goto future](#)

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Sale/alternative: **Swauk Pine Alt. 2**

Non-Timber Project Name	Benefit Total Dollars	Cost Total Dollars	Disc Rate	Duration In Years	Start - Years From Now
Road Decom. (6.67 mi.)	0.00	180,000.00	4.0%	1.0	1.0
Natural Fuel UBR (1250AC.)	0.00	187,500.00	4.0%	1.0	1.0
Aspen Regeneration (19 ac.)	0.00	9,000.00	4.0%	1.0	1.0
Mastication Thin (90 ac.)	0.00	18,000.00	4.0%	1.0	1.0
Non-Commercial Thin (21 ac.)	0.00	6,500.00	4.0%	1.0	1.0
Legacy Tree Protection (509ac)	0.00	12,750.00	4.0%	1.0	1.0
Riparian LWD (16 Sites)	0.00	55,000.00	4.0%	1.0	1.0
Tree Planting (60 ac.)	0.00	5,500.00	4.0%	1.0	1.0
Noxious Weeds Rx (31 sites)	0.00	6,200.00	4.0%	1.0	1.0
Dispersed Rec Sites (4)	0.00	13,000.00	4.0%	1.0	1.0
Skid Trail_Road X-ing (7)	0.00	14,000.00	4.0%	1.0	1.0
ML-1 Road Closures(2)	0.00	3,400.00	4.0%	1.0	1.0
Culvert Replace/Size (14)	0.00	195,000.00	4.0%	1.0	1.0
Construct New Rec Trail (.21)	0.00	5,000.00	4.0%	1.0	1.0
Decommission Trail (1.2)	0.00	8,000.00	4.0%	1.0	1.0
Road to Trail Conversion(1.1)	0.00	6,000.00	4.0%	1.0	1.0
New Rd Construction (.39)	0.00	5,460.00	4.0%	1.0	1.0
	0.00	730,310.00			

Shown below is the discounted revenues and costs generated for the Swauk Pine project. Alternative 1 has no revenue or costs. The alternative 2 project summary is shown below:



## PROJECT OR SALE-AS-A-WHOLE ECONOMIC ANALYSIS SUMMARY

Version 6.1 (5/30/2013) - R6, Excel 2007 & 2010

Volume type: **CCF**

Forest/district:

Sale/alternative: **Swauk Pine Alt. 2**

Date: **6/1/2016**

Harvest vol current: **9,462**

Harvest vol future:

Total harvest volume: **9,462**

Project Type	Entry	Discounted Costs	Discounted Revenues	Net Present Value (NPV)	Benefit-Cost Ratio (B/C)	Predicted High Bid- \$/ccf	Notes
Timber sale	<b>Current</b>					2.38	sale appears deficit
Timber sale & related projects		107,235	20,455	(86,780)	0.19		sale is below cost
Non-timber related projects		688,586		(688,586)			project is below cost
Timber & non-timber projects		795,821	20,455	(775,366)	0.03		project is below cost
Timber sale	<b>Future (16)</b>						
Timber sale & related projects							
Non-timber related projects							
Timber & non-timber projects							
Timber sales & related projects	<b>All entries</b>	107,235	20,455	(86,780)	0.19		combined project below cost
Non-timber related projects		688,586		(688,586)			combined project below cost
Timber & non-timber projects		795,821	20,455	(775,366)	0.03		combined project below cost

Appraisal Zone	National Forest	TEA.COST File	Salvage Sale?
2	Wenatchee	Version 1621 (TEA 04-16) - R6 TEA Data	No

## Local Employment

Both the timber sale and the restoration activities generate jobs. Using Northeast Washington mill studies, 12 jobs are created per million board feet (Headwaters, 2007), using this ratio, 66 person year jobs would be created from harvesting activities on Swauk Pine project.

For the non-timber related work, the Swauk Pine project would generate additional jobs. For comparative purposes, restoration work in Oregon created 17 new person year jobs per \$1,000,000.00 invested during the period of 2001-2010 (Holland, 2012). Using this ratio, the Swauk Pine project, with \$730, 310 of non-timber projects would generate 12.5 non-timber jobs lasting one year

## Vegetation Treatment Costs Compared to Wildfire Suppression Cost

The purpose and need to the Swauk Pine project is to avert stand replacement fire and better protect and culture Northern Spotted Owl habitat. To accomplish this, the total vegetation treatment cost (commercial thinning, activitiy fuels underburning, and natural fuels underburing) is \$687,900, across 4085 acres, for an average cost of \$168.00/ac. Although the outcomes are different and not completely comparable, the Table Mountain Fire in 2012 cost \$17.9 million, burned 43,312 ac., for a cost of \$415.00/ac..